



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,351	07/31/2003	Oliver Harnack	282726US8X	3470
22850	7590	03/08/2010	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			YU, MELANIE J	
			ART UNIT	PAPER NUMBER
			1641	
			NOTIFICATION DATE	DELIVERY MODE
			03/08/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

1
2 RECORD OF ORAL HEARING
3 UNITED STATES PATENT AND TRADEMARK OFFICE

4
5 BEFORE THE BOARD OF PATENT APPEALS
6 AND INTERFERENCES
7

8 *Ex parte* OLIVER HARNACK, WILLIAM E. FORD,
9 JURINA WESSELS, and AKIO YASUDA
10

11 Appeal 2009-007944
12 Application 10/631,351
13 Group Art Unit 1600
14

15 Oral Hearing Held: February 2, 2010
16
17

18 Before TONI R. SCHEINER, DONALD E. ADAMS, and
19 LORA M. GREEN, Administrative Patent Judges.
20

21 ON BEHALF OF THE APPELLANTS:
22

23 JACOB A. DOUGHTY, ESQ.
24 Oblon, Spivak, McClelland,
25 Maier & Neustadt, L.L.P.
26 1940 Duke Street
27 Alexandria, VA 22314
28 (703) 413-2737
29
30
31

1 The above-entitled matter came on for hearing on Tuesday,
2 February 2, 2010, commencing at 10:20 a.m., at the U.S. Patent and
3 Trademark Office, 600 Dulany Street, 9th Floor, Alexandria, Virginia,
4 before Jan M. Jablonsky, Notary Public.

5 THE CLERK: Good morning. Calendar number 8, appeal
6 number 2009-007944, Mr. Doughty.

7 JUDGE SCHEINER: Thank you. Good morning.

8 MR. DOUGHTY: Hi there.

9 JUDGE SCHEINER: Oh, before we get started, are you also
10 arguing the next case? It is your firm –

11 MR. DOUGHTY: No, Harris Pitlick is arguing –

12 JUDGE SCHEINER: Oh, okay. That is fine, because we do
13 need some time between the two, so –

14 MR. DOUGHTY: An intermission there –

15 JUDGE SCHEINER: Pardon me?

16 MR. DOUGHTY: Intermission?

17 JUDGE SCHEINER: Yes, we do, actually. Okay, all right.
18 Well, that works out well, then.

19 MR. DOUGHTY: Can I approach the reporter?

20 JUDGE SCHEINER: Yes, as long as it is only to put
21 something that is already of record -- okay.

22 MR. DOUGHTY: My business card, which is not –

23 JUDGE SCHEINER: Oh, thank you. That is pretty -- that is
24 very helpful.

25 (Pause.)

26 MR. DOUGHTY: May it please the Board, my name is Jacob
27 Doughty, and I represent Oliver Harnack and his co-inventors, who are the

1 Appellants in this matter. For the purpose of my oral presentation today, I
2 am going to focus on independent Claim 2, and the obviousness rejection
3 over the combination of Ford and Klein, and the obviousness rejection over
4 Ford and Schueller.

5 Claim 2 is directed to a method in which a hydrophobic surface
6 is provided. Hydrophilic macromolecules are mobilized on a hydrophobic
7 surface, and then the immobilized hydrophilic macromolecules are exposed
8 to a hydrophilic species so that the hydrophilic species become attached to
9 the immobilized hydrophilic macromolecules.

10 So, that's a lot of "hydrophilic" and "hydrophobic" but, in sum,
11 what's going on is we are taking a substrate, and we're putting a
12 macromolecule with a DNA molecule or something on the substrate, and
13 then we are treating it with, for example, gold nano particles to form, like, a
14 nano wire of sorts. This is an example of what's going on.

15 So, basically, you have this hydrophobic substrate, and then
16 there is the hydrophilic DNA molecule, and then the hydrophilic gold nano
17 particles, which are -- adhere to the DNA molecule. So at the end, hopefully
18 what you have is a thin stream of DNA, which is supporting a strand of a
19 metallic substance to form a wire which might be useful in forming circuits
20 on a --

21 JUDGE ADAMS: So, in your description of the claim, does it
22 exclude these nano particles from binding any place other than the nucleic
23 acid?

24 MR. DOUGHTY: No, it doesn't. The claim doesn't exclude --
25 as I will discuss a little bit, that's the intent -- that's how we -- that's the
26 distinction that we are making over what's going on in the prior art. The

1 reason why we don't think it would be obvious to select the particular
2 materials that are used –

3 JUDGE ADAMS: Okay.

4 MR. DOUGHTY: But the claim itself doesn't exclude that
5 from the current.

6 So, Ford, which is the primary reference that I wanted to
7 discuss is the prior work of the Appellant. And this discloses a hydrophilic
8 substrate on which hydrophilic nucleic acids are immobilized and then
9 metalized, using a hydrophilic species.

10 Klein discloses immobilizing a hydrophilic nucleic acid on a
11 hydrophobic substrate. So, Appellants don't dispute that it is known to
12 immobilize a hydrophilic macromolecule, DNA or something like that, on a
13 hydrophobic substrate. What is disputed is whether or not it would have
14 been obvious to use that combination of hydrophobic substrate and
15 hydrophilic macromolecule in a situation where you want to label these
16 things or metalize them using a hydrophilic species.

17 Neither Ford nor Klein discloses the particular combination of
18 features that's in Claim 1. So, mainly, there is no reference on the record
19 which has the hydrophobic substrate and hydrophilic macromolecule, and
20 hydrophilic species.

21 To obtain the method of Claim 2 from the teachings of Ford and
22 Klein, it would be necessary to replace the hydrophilic substrate of Ford
23 with the hydrophobic substrate of Klein.

24 So, the question is whether one of ordinary skill in the art
25 would have expected success upon making such a modification. It's the
26 Appellant's position that it was generally understood that when you have a
27 hydrophobic substrate, that a hydrophilic species such as metal nano

1 particles, or something like that, will adhere non-specifically to the substrate.

2

3 So, basically, the examples that are discussed, for example, in
4 the prior art is -- the antibodies or something like that in the -- I think it was
5 the Caldwell reference, where if you -- when you try to treat things on a
6 hydrophobic substrate, you cannot control where the hydrophilic species is
7 attached. So if you want it to localize to something that was on that
8 substrate, it would be difficult to do, because you would expect it to attach
9 not only to what you wanted it to attach to, but also to --

10 JUDGE SCHEINER: Well, why don't we talk about the Fan
11 reference, though, because that is more relevant to the combination -- the
12 evidence that -- Fan is evidence that you submitted?

13 MR. DOUGHTY: Yes.

14 JUDGE SCHEINER: Is that correct?

15 MR. DOUGHTY: Mm-hmm.

16 JUDGE SCHEINER: Okay.

17 MR. DOUGHTY: So, basically, we -- the Examiner had -- we
18 had mentioned Caldwell as disclosing a certain hydrophilic species that
19 would adhere non-specifically. The Examiner took a position that, in the
20 Ford reference, what's being attached is nano particles, metallic nano
21 particles, so that this teaching with respect to the non-specific finding of
22 these particular macro molecules is not necessarily pertinent to what is going
23 on in Ford.

24 So, we provided another reference, the Fan reference. And
25 basically, this reference is a reference that is comparing different surface-
26 coated -- some assembled monolayers of -- on gold, for example. Another

1 thing they're doing is looking at particles that have certain surface groups on
2 them, and determining the degree to which they adhere to the substrates.

3 And so, basically, this is just a model to discuss the effects of
4 sort of changing these groups that are on the outside of the -- call it a gold
5 particle, or monolayer, to determine what their propensities are, with respect
6 to adhering to each other. And so, basically, the Fan reference shows, for
7 example, that looking at a hydrophobic particle and a hydrophilic particle,
8 both have a tendency to adhere more strongly to hydrophobic surfaces.

9 And so, again, we don't claim that this is precisely the same
10 type of particles that are going on in Ford, but just to sort of give a general
11 flavor of what one of ordinary skill in the art would understand, sort of
12 looking at the totality of the information that's out there.

13 So, taking that into consideration, it's been our position that one
14 of ordinary skill in the art would expect, by substituting the substrate of Ford
15 with the polystyrene that's discussed in Klein, that the result would be sort
16 of this non-specific binding, which would be unsuitable for forming sort of a
17 precise structure, like a wire.

18 And I just wanted to point out something else about Klein. If
19 you look at Klein, Klein is directed to this combing process, whereby -- what
20 they are intending to do is take -- to form like a polystyrene line on the
21 substrate, and then use this polystyrene line to bind to an end of a DNA
22 molecule. And basically, what they want to do is drag this out of a reaction,
23 a liquid or something like that, and the effect is that it straightens out the
24 DNA molecule.

25 So, Klein includes some disclosure in the beginning of the
26 reference -- I think on the first page on the left column -- sort of abstract
27 possibilities for which this process can be used. And the one that was of

1 interest to the Examiner, and I think may be of interest to you, is they
2 mention the possibility of forming wires.

3 The thing that I wanted to emphasize with respect to this
4 disclosure is that if you look -- again, I'm looking at page 2396 of Klein, the
5 left-hand column beginning with the second paragraph -- and basically, what
6 they're talking about is the fact that you could form wires, and wires can be
7 formed on things like -- I think they're saying substrates such as glass or
8 sylene-treated substrates.

9 So, basically, what they're talking about here is the formation
10 of wires on hydrophobic -- hydrophilic substrates.

11 JUDGE SCHEINER: Sylene-treated -- yes, mm-hmm.

12 MR. DOUGHTY: Yes. So, even if you're looking at what is
13 going on in Klein, they are using sort of these lines of polystyrene to affect
14 the lengthening and straightening of the DNA. But the portions that are
15 immobilized and intended to be labeled, to be structured, are not -- they're
16 not on a hydrophobic substrate. I mean they would have to be on a
17 hydrophilic substrate.

18 There is nothing in this reference or in these other references
19 that would suggest that you could do this sort of specific labeling of a
20 hydrophilic species, or a hydrophilic macromolecule with a hydrophilic
21 species, unless it's sitting on top of a hydrophilic substrate. So, that's the
22 point I wanted to emphasize with respect to that.

23 So -- and Schueller reference, which is the other combination,
24 it's sort of the same situation. Basically, Schueller is disclosing the
25 possibility of adhering a hydrophilic macromolecule to a hydrophilic
26 substrate. But again, we don't have this additional aspect of labeling, and
27 for the same reasons that we discussed with respect to Klein and Ford. One

1 would not expect that you could accomplish this sort of precision wire-
2 making type thing that they're trying at Ford –

3 JUDGE SCHEINER: Right. So is it fair to say that even
4 though your claim does not eliminate or does not preclude the possibility of
5 the hydrophilic species binding everywhere, you would not combine either
6 Klein or Schueller -- well, we have not really gotten to Schueller -- but you
7 would not combine that with Ford, because of what Ford is trying to
8 accomplish?

9 MR. DOUGHTY: Exactly, exactly.

10 JUDGE SCHEINER: Okay.

11 MR. DOUGHTY: Ford is attempting to achieve a precision, in
12 terms of the wire, and non-specific binding would undermine that purpose.
13 So that's why we –

14 JUDGE SCHEINER: And that -- even though Fan is colloidal
15 gold, it is close enough, is that your position?

16 MR. DOUGHTY: Yes. Right, right. So, I mean, it would be
17 understandably difficult for us to find a study that is, you know, dealing
18 exactly with the situation that –

19 JUDGE SCHEINER: Well, sure, we would like to see that,
20 especially if it was an earlier date.

21 MR. DOUGHTY: So, basically, our position is just sort of the
22 totality of –

23 JUDGE SCHEINER: I see, okay. Well, I -- okay. I think we
24 understand that part.

25 MR. DOUGHTY: So, basically, I don't have any specific
26 additional comments with respect to Schueller, other than –

27 JUDGE SCHEINER: Right, Schueller is very similar, yes.

1 MR. DOUGHTY: -- the same arguments that I made with
2 respect to --

3 JUDGE SCHEINER: Okay.

4 MR. DOUGHTY: Does anyone have any questions?

5 JUDGE SCHEINER: I do have a question, a sort of a
6 housekeeping question.

7 MR. DOUGHTY: Sure.

8 JUDGE SCHEINER: There was an obviousness-type double
9 patenting rejection, provisional, I think.

10 MR. DOUGHTY: Yes.

11 JUDGE SCHEINER: And I do not have my notes with me. I
12 think I looked that up, and that other case or cases are still pending. So it is
13 still a provisional. And they --

14 MR. DOUGHTY: That is my understanding. I don't want to
15 say --

16 JUDGE SCHEINER: Okay.

17 MR. DOUGHTY: -- clearly on the record that --

18 JUDGE SCHEINER: No, I understand that. But the Examiner
19 did not repeat that rejection. Is that correct, or --

20 MR. DOUGHTY: Well, I think the rejection is still
21 outstanding.

22 JUDGE SCHEINER: Okay.

23 MR. DOUGHTY: We had requested that it be held in
24 abeyance.

25 JUDGE SCHEINER: Okay.

26 MR. DOUGHTY: But we didn't address it in our --

1 JUDGE SCHEINER: All right. But it is your understanding
2 that it is still outstanding?

3 MR. DOUGHTY: That's my understanding –

4 JUDGE SCHEINER: Okay. In that case, we may summarily
5 affirm it –

6 MR. DOUGHTY: They will have to be –

7 JUDGE SCHEINER: -- I am not sure yet how we will handle
8 that.

9 MR. DOUGHTY: And, you know, these –

10 JUDGE SCHEINER: Right, okay.

11 MR. DOUGHTY: Anything else?

12 JUDGE SCHEINER: I do not have anything further. Do you
13 have anything? I think that is it.

14 MR. DOUGHTY: Thank you very much.

15 Whereupon, at 10:33 a.m., the proceedings were concluded.

16

17

18

19

20

21

22

23

24

25

26

27